IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A vaporizer for vaporizing a sterilant from its liquid phase in a vapor phase sterilization system having a pressure below atmospheric pressure, said vaporizer comprising:

an inlet whereby to receive the sterilant in its liquid phase;

an outlet whereby to discharge the sterilant in its vapor phase;

a circuitous path between the inlet and the outlet whereby to collect non-vaporizable ingredients of the sterilant; and

a flow restriction between the circuitous path and the outlet.

2. (Original) A vaporizer according to claim 1 wherein the circuitous path comprises a plurality of baffles.

3. (Original) A vaporizer according to claim 1 wherein the circuitous path comprises an inner tube positioned concentrically within an outer tube, the circuitous path including a first portion in a first direction between the inner tube and the outer tube and a second portion in a second opposite direction through the inner tube.

4. (Original) A vaporizer according to claim 1 wherein the circuitous path comprises at least one portion in which an effective cross-sectional area of the portion increases by at least 89% whereby to decrease the speed of the sterilant passing therethrough.

5. (Previously presented) A vaporizer for vaporizing a sterilant from its liquid phase in a vapor phase sterilization system having a pressure below atmospheric pressure, said vaporizer comprising:

an inlet whereby to receive the sterilant in its liquid phase;

an outlet whereby to discharge the sterilant in its vapor phase;

a circuitous path between the inlet and the outlet whereby to collect non-vaporizable ingredients of the sterilant;

a flow restriction between the circuitous path and the outlet; and

wherein the flow restriction comprises an orifice having a cross-sectional area no greater than 44.1% of a cross-sectional area of the circuitous path immediately upstream of the orifice.

6. (Original) A vaporizer according to claim 1 wherein the circuitous path comprises at least two turns, each of which are at least 90 degrees.

7. (Original) A vaporizer according to claim 1 wherein the restriction can retain the vapor within the vaporizer for at least 17 milliseconds.

8. (Original) A vaporizer according to claim 7 wherein the restriction can retain the vapor within the vaporizer for at least 26 milliseconds.

9. (Currently amended) A method of providing a vapor phase sterilant to a sterilization chamber comprising the steps of:

creating temperature and pressure conditions within a vaporizer sufficient to vaporize the sterilant said pressure condition comprising a pressure below atmospheric pressure;

admitting the sterilant, in its liquid phase, into the vaporizer and vaporizing the sterilant;

admitting no carrier gas into the vaporizer;

passing the sterilant through a circuitous path and collecting non-vaporizable components of the sterilant on surfaces forming the circuitous path;

then passing the sterilant, in its vapor phase, through a flow restriction; and

passing the sterilant, in its vapor phase, out of the vaporizer.

10. (Original) A method according to claim 9 wherein the step of passing the sterilant through a circuitous path comprises passing the sterilant past a plurality of baffles.

11. (Original) A method according to claim 9 wherein the step of passing the sterilant through the circuitous path comprises passing the sterilant in a first direction through an inner tube positioned concentrically within an outer tube and in a second opposite direction between the inner tube and the outer tube.

12. (Original) A method according to claim 9 wherein the step of passing the sterilant through a circuitous path comprises passing the sterilant through at least one portion in which an effective cross-sectional area of the portion increases by at least 89% thereby decreasing the speed of the sterilant passing therethrough.

13. (Previously presented) A method of providing a vapor phase sterilant to a sterilization chamber comprising the steps of:

creating temperature and pressure conditions within a vaporizer sufficient to vaporize the sterilant;

admitting the sterilant, in its liquid phase, into the vaporizer and vaporizing the sterilant;

passing the sterilant through a circuitous path and collecting non-vaporizable components of the sterilant on surfaces forming the circuitous path;

then passing the sterilant, in its vapor phase, through a flow restriction;

passing the sterilant, in its vapor phase, out of the vaporizer; and

wherein the step of passing the sterilant through the circuitous path comprises passing the sterilant through an orifice having a cross-sectional area no greater than 44.1% of a cross-sectional area of the circuitous path immediately upstream of the orifice.

14. (Original) A method according to claim 9 wherein the step of passing the sterilant through the circuitous path comprises having the sterilant make at least two turns, each of which are at least 90 degrees.

15. (Original) A method according to claim 9 wherein the non-vaporizable components comprise stabilizing compounds for the liquid phase of the sterilant.

16. (Original) A method according to claim 16 wherein the sterilant comprises hydrogen peroxide.

17. (Previously presented) A method of providing a vapor phase sterilant to a sterilization chamber comprising the steps of:

creating temperature and pressure conditions within a vaporizer sufficient to vaporize the sterilant;

admitting the sterilant, in its liquid phase, into the vaporizer and vaporizing the sterilant;

passing the sterilant through a circuitous path and collecting non-vaporizable components of the sterilant on surfaces forming the circuitous path;

then passing the sterilant, in its vapor phase, through a flow restriction;

passing the sterilant, in its vapor phase, out of the vaporizer; and

wherein at least 75% of the non-vaporizable components are removed from the sterilant prior to the step of passing the sterilant out of the vaporizer.

18. (Original) A method according to claim 17 wherein substantially all of the non-vaporizable components are removed from the sterilant prior to the step of passing the sterilant out of the vaporizer.

19. (Original) A method according to claim 9 wherein the sterilant remains within the vaporizer for at least 17 milliseconds.

20. (Original) A method according to claim 19 wherein the sterilant remains within the vaporizer for at least 26 milliseconds.